18 October 1966

P.I. PRINT ENLARGER

1. PROBLEM.

To enable the photo interpreter to disseminate more rapidly the results of his analysis.

2. FACTS BEARING ON THE PROBLEM.

a. The photo interpreter, viewing roll [illegible], frequently finds new or changed targets which should be immediately disseminated through informal briefings to his co-workers or to higher authorities.

b. The most practical method of conveying such information is through printed enlargements. Such prints make it possible to display the information for simultaneous viewing by several persons, leaving the original film free for undisturbed study.

c. If they could be available in time, these prints would also make it practicable for the photo interpreter to make rough annotations and delineate targets on the enlargement while the original film is still at hand for reference and the subject matter was still fresh in the interpreter's mind. These notes would be invaluable for the graphical analyst who later prepares formal briefing boards.

d. The normal process of ordering enlargements from the photo laboratory, where the identical image must be relocated, printed, processed, and dried, is sufficiently time-consuming that it must be reserved for a few of the very highest priority discoveries.

e. The present delays in obtaining printed enlargements will be unacceptable when the Center begins near-real-time readouts.

3. DISCUSSION.

a. Current Procedure. To obtain an enlargement, the photo interpreter places an order with the photo laboratory. The laboratory obtains a copy of the film and produces the desired enlargement through conventional photographic methods. Depending on the priority of the request and the backlog of work in the laboratory, the photo interpreter's request may be satisfied in one or several hours. The enlargements thus produced are of high quality and are ideal for use in formal briefings and permanent displays. For these purposes, the present system will not be affected by the proposed enlarger. However, for informal briefings, immediate dissemination, when less quality would be acceptable, the present system

is not appropriate. In these circumstances, informal briefings can only be given around the P.I.'s viewer, which seriously interferes with the photo interpretation process, and precludes annotation.

b. Origin of Concept. The need for immediately available enlargement prints has been recognized throughout the history of photo interpretation. In recent years, with the advent of more strategic reconnaissance and the resultant widening circle of immediate interest in the interpreters' findings, there has been increased demand for more rapid dissemination of these findings to a greater number of people. The requirement was formalized in a memorandum to P&DS from the CIA/IAD--IAD/OSS 346/65--dated 16 November 1965, which requested the development of a rapid-access paper print viewer/enlarger to permit the P.I. to scan a roll of film, select an area for enlargement, and produce an enlarged paper print directly from the roll of positive film being scanned. These enlargements were to be used for impromptu briefings, for working materials, and for division reference materials, but were not to replace the high-quality enlargements produced by the NPIC photo laboratory.

This requirement presents two problems. The first, development of the viewing/printing instrument, is dependent on the second and more difficult, development or selection of a suitable photographic reproduction material. Prior to the IAD request, under PAR 203, the [redacted] 25X1
25X1 [redacted] studied the possibility of building an instrument for the rapid and convenient reproduction of photographic materials by the photo interpreter in his normal working environment. In its final report, [redacted] recommended that a rapid-access printer be designed utilizing Technifax H-5 Diazo Material. However, the recommended system would have been limited to reproductions of the same size as the originals.

Following receipt of the IAD request, all known materials were investigated for application. Conventional photographic materials were deemed unsuitable because available reproduction methods are too slow and require facilities which inhibit their use in the P.I.'s normal working environment. Commercially available non-conventional materials were found unsuitable for a variety of reasons. Some, such as Kalvar, Diazo, and Technifax require exposure times which make them impracticable for enlargements. Bimat material cannot produce paper prints, but only film positives. The G.E. Photobleach and the 3-M Dry Silver materials hold promise, but both are still under development.

25X1 In August 1966, [redacted] demonstrated to the NPIC/P&DS, Anken Diffusion Transfer material, which meets all the requirements for a rapid-access positive printing system and is commercially available.

c. Proposed Program. This project is for the development of a prototype viewer/printer with magnification steps of approximately 2X, 4X, 7X, 10X, and 20X. The instrument will allow the photo interpreter to view roll film positive and to produce positive paper prints of selected portions without removing the roll. This is to be accomplished by a mirror which can be tilted to reflect imagery from the film either toward the interpreter for viewing or onto the Anken Diffusion Transfer material for reproduction. Production of a print will require approximately 30 seconds.

d. Selection of Contractor. [redacted] has submitted an unsolicited proposal to develop a rapid-access viewer/printer, utilizing the Anken Diffusion Transfer material. [redacted] is the supplier of Anken material. Many of the techniques to be applied to the development of this system have been developed and successfully utilized by the [redacted] on other Government sponsored programs in the fields of viewing, printing, and processing equipment. NPIC is involved in several R&D projects with [redacted] and has had beneficial associations with [redacted] in the past. The past successful accomplishments of [redacted] in the field of viewer/printers indicate that the contract award to [redacted] will result in superior equipment.

e. Program Phasing. This development will require approximately seven months. As illustrated in TAB C, roughly equal time will be spent on equipment design, fabrication, and assembly. The contractor will prepare monthly reports which will provide decision-makers a basis for controlling the direction and scope of the project as it progresses.

f. Coordination. There is no known equipment either under development or available commercially which will satisfy this requirement. This has been coordinated with DDS&T/ORD, disseminated to the intelligence community through the 1966 NPIC Equipment Summary and presented to the Committee on Photographic Exploitation. Specifically, this has been coordinated with [redacted] DDS&T/ORD and the representatives of the requesting component.

g. Alternatives. The new transfer material which forms the basis for the proposal constitutes a significant breakthrough which makes it possible to solve a long-standing problem in the field of photo interpretation. Alternative approaches would be to continue to live with the problem, at the expense of further waste in manpower and efficiency; to invite additional proposals, although preliminary investigation has shown that there is no other available method of filling the requirements; or to wait for development of the G.E. Photobleach material or the 3-M Dry Silver material, neither of which is likely to answer the problem any better than the material now available through [redacted]

4. CONCLUSIONS.

Historically, there has been a need for a means of producing rapid, high-quality enlargement prints during the scan of operational photography. This requirement was formalized in 1965 by a request from an operational component of the NPIC. Until recently, there had been no reproduction material available for this purpose. A proposal from the [redacted] in September 1966 for development of the desired viewer/printer is based on a new material and promises to answer this problem with a minimum of development. The company has the required technically competent personnel and facilities, and the funding quoted is reasonable. There is no other way to fill this requirement at this time, and there is every reason to expect a satisfactory prototype from [redacted] within the scheduled time and at the cost quoted.

5. RECOMMENDATIONS.

It is recommended that a contract be signed with the [redacted] 25X1 for the development of a Photo Interpreter Viewer/Printer at a funding level of [redacted] 25X1

6. REFERENCES AND ATTACHMENTS.

TAB A Catalog Form
TAB B Memorandum From IAD dated 16 November 1965, 4 October 1966
TAB C Program Phasing

Attachment: [redacted] Proposal 25X1

R & D CATALOG FORM

DATE: 18 October 1966

1. PROJECT TITLE/CODE NAME: P.I. Print Enlarger

2. SHORT PROJECT DESCRIPTION: The design and development of a rapid-access enlarging printer/viewer.

3. CONTRACTOR NAME: 25X1

4. LOCATION OF CONTRACTOR:

5. CLASS OF CONTRACTOR: Manufacturer

6. TYPE OF CONTRACT: CPFF

7. FUNDS:
FY 19 66 $ None
FY 19 67 $ 25X1
FY 19 68 $ None

8. REQUISITION NO.:

9. BUDGET PROJECT NO.: NP-R-14-10147

10. EFFECTIVE CONTRACT DATE *(Begin - end)*: December 1966 - August 1967

11. SECURITY CLASS.:
A.A. - Confidential
T. - Unclassified
W. - Unclassified

12. RESPONSIBLE DIRECTORATE/OFFICE/PROJECT OFFICER TELEPHONE EXTENSION: DDI/NPIC/P&DS/ 25X1

13. REQUIREMENT/AUTHORITY

This project is to satisfy an NPIC operational requirement for a method of rapidly producing enlarged positive paper prints from positive transparencies.

14. TYPE OF WORK TO BE DONE

Engineering development

15. CATEGORIES OF EFFORT

MAJOR CATEGORY	SUB-CATEGORIES
Reproduction Techniques & Materials	Photo Equipment
	Enlargers
	Printers

16. NEW ITEM OR SERVICES FROM THIS CONTRACT/IMPROVEMENT OVER CURRENT SYSTEM, EQUIPMENT, ETC.

The final product will be a prototype equipment in which a positive roll or chip can be viewed, and which will rapidly produce Enlarged Positive Prints from a selected film area.

17. SUPPORTING OR RELATED CONTRACTS *(Agency & Other)*/COORDINATION

There is no known equipment either under development or available commercially which will satisfy this requirement. This has been coordinated with DDS&T/ORD, disseminated to the intelligence community through the 1966 NPIC Equipment Summary and presented to the Committee on Photographic Exploitation.

18. DESCRIPTION OF INTELLIGENCE REQUIREMENT AND DETAILED TECHNICAL DESCRIPTION OF PROJECT *(Continue on additional page if required)*

The proposed P.I. Print Enlarger will enable the photo interpreter to make work prints and rush photos, from 2X - 20X, for briefing purposes in less than a minute. The photo system used with the equipment will utilize the Anken Diffusion Transfer material.

19. APPROVED BY AND DATE

OFFICE	DEPUTY DIRECTOR	DDCI